A118 - System Requirements Specification Coversheet

System:	***Item Number:*** A118
Title: Systems Requirements Specification	
RFP Reference: Section VI Part 3, P.2	
Date of Submission: • Draft submission due 7 days prior to the Requirements Review meeting. • Final submission due 10 days after the Requirements Review meeting. • If approval of deliverable is contingent on incorporation of changes specified by CDCR, an updated submission incorporating the changes shall be provided within 10 days. • Updates: The analysis shall be updated to track all subsequent requirements related documents (e.g. design documents, test plans, approved change proposals, final test results) and changes to requirements to arrive at the final, agreed upon requirement set. The analysis shall be maintained current to within 10 days of any change to requirements specifications (unless otherwise specified and agreed) and to within 10 days of any requirements related documents.	
Distribution: • CDCR: 2 copies along with a magnetic media containing MS Office format copy. • V&V: 1 copy along with a magnetic media containing MS Office format copy.	
Approval: CDCR written approval is required.	
Comment: Change pages may be delivered upon approval of changes to the requirements until the cumulative total number of change pages reaches 10% of the final submission, upon which the entire document shall be re-issued.	

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Preparation Instructions: The Contractor shall provide this document according to the standards defined in the documentation plan. The deliverable(s) shall include at a minimum the contents of the template in and/or following this coversheet, or equivalent as determined by the Project Director or designee. Providing less information than required in the template or any exceptions shall not be allowed unless advance written permission is obtained from the Project Director or designee.

System Requirements Specification Template

The following is a template for the System Requirements Specification (SyRS). This requirements document is a generalization of a system requirements specification, based on content requirements specified for both a system requirements specification IEEE J-Std-016-1995 and a software requirements specification IEEE 830-1993. The goal of the SyRS is to identify all components of the system: hardware, software, database, and interfaces. The SyRS is reviewed at the Requirements Review and is used to guide the Design Process.

The SyRS is published and approved after the Requirements Review. The SyRS is complete when all components of the system have been sufficiently addressed so that the designers can design the system. That is, there are no unanswered questions about how a requirement is addressed, the functionality to be provided, or what external inputs and outputs exist, in the system.

The SyRS uses the term "item" to refer to a component described in this document. Every item should be considered a configuration control item or an item within a configuration item.

1.0   SCOPE

1.1   Identification

Identify the system including any identification number(s), title(s), abbreviation(s), version number(s), and release number(s).

1.2   System Overview

State the purpose of the system, explain what the system will and, if necessary, will not do, and describe relevant benefits, objectives and goals.

1.3   Document Overview

Describe the contents of the document, explain its organization, and describe any security or confidentiality considerations for the document.

1.4   Referenced Documents

Provide a complete list of other documents referenced in the SyRS. Included shall be title, date, and publisher.

1.5   Definitions and Acronyms

Define acronyms and terms that are contained in this plan.

2.0   REQUIREMENTS

Specify the requirements of the system that are conditions for its acceptance. Each requirement shall be assigned a project-unique identifier to support testing and traceability and shall be stated in such a way that objective tests producing relevant, measurable results can be defined for the requirement.

2.1   Required States and Modes

If more than one state or mode of operation is required for the system, identity and define each of those states and/or modes. Examples may include normal, training,

emergency, degraded, backup, etc. If only one state of mode of operation is required for the system, this subsection may be omitted.

2.2   Software Requirements

Identify the required software requirements of the system. System-wide software requirements including but not limited to response times, throughput times, and capacities shall be included. Each process area, process, and function shall be described in its own subsection.

2.2.x   Process Area x

Describe each process area grouping in the system including purpose, a summary of primary functions, classes of customers who will be using this part of the system, and interfaces (external and internal between other process area groupings).

2.2.x.x – Process x.x

Include a step by step description for each process within the process area. This description shall include both a narrative and graphical pictorial of the flow of the process. Each necessary function shall be included as an item within the process. Each interface shall also be included.

2.2.x.x.x Function x.x.x

For each function within the process, include the following information about the function:

- Description
- Input data entities
- Algorithm or formula of function
- Output or affected data entities
- Any special error handling requirements

2.3   System External Interface Requirements

Identify the required external interfaces of the system (that is, relationships with other entities that involve sharing, providing or exchanging data).

2.3.1 – Interface Identification and Diagrams

Identify each required external interface of the system. The identification shall include a unique identifier and name as well as the name, number, version, and documentation references for the interfacing entities (systems, hardware, software, users, etc). One or more interface diagrams shall be provided to describe the interfaces

2.3.x - (Name of) Interface x

Present the interface requirements as assumptions, not requirements, on the other entity. For example, "When the other entity does this, this system shall …" Include the following external interface requirements:

- Priority that the software item is required to assign the interface

- Requirements on the type of interface (such as real-time data transfer, storage- and retrieval of data, etc.) to be implemented

- Required characteristics of individual data elements that the system must provide, store, send, access, receive, etc, such as:

- Data type (alphanumeric, integer, etc.)

- Size and format (such as length and punctuation of a character string)

- Units of measurement (such as meters, dollars, seconds)

- Range or enumeration of possible values (such as 0-99)

- Accuracy (how correct) and precision (number of significant digits)

- Priority, timing, frequency, volume, sequencing, and other constraints, such as whether the data element may be updated and whether business rules apply

- Security and privacy constraints

- Sources (setting/sending entities) and recipients (using/receiving entities)

- Required characteristics of data element logical groups (records, messages, files, arrays, displays, reports, etc.) that the system must provide, store, send, access, receive, etc., such as:

- Names/identifiers

- Data elements in the logical group and their structure (number, order, grouping)

- Medium (such as disk) and structure of data elements/logical groups on the medium

- Visual and auditory characteristics of displays and other outputs (such as colors. layouts, fonts, icons and other display elements, beeps, lights)

- Relationships among logical groups, such as sorting/access characteristics

- Priority, timing, frequency, volume, sequencing, and other constraints, such as whether the logical group may be updated and whether business rules apply

- Security and privacy constraints

- Sources (setting/sending entities) and recipients (using/receiving entities)

- Required characteristics of communication methods that the system must use for the interface, such as:

- Project-unique identifier(s)

- Communication links/bands/frequencies/media and their characteristics

- Message formatting

- Flow control (such as sequence numbering and buffer allocation)

- Data transfer rate, whether periodic or aperiodic, and interval between transfers

- Routing, addressing, and naming conventions

- Transmission services, including priority and grade

- Safety/security/privacy considerations, such as encryption, user authentication, compartmentalization, and auditing

- Required characteristics of protocols the system must use for the interface, such as:

- Project-unique identifier(s)

- Priority/layer of the protocol

- Packeting, including fragmentation and re-assembly, routing, and addressing

- Legality checks, error control, and recovery procedures

- Synchronization, including connection establishment, maintenance, termination

- Status, identification, and any other reporting features

- Other required characteristics, such as physical compatibility of the interfacing Entities (dimensions. Tolerances. loads, plug compatibility, etc.), voltages, etc

2.4   System Internal Interface Requirements

Specify the requirements imposed on interfaces internal to the system. If all internal interfaces are left to the design this fact shall be so stated. If such requirements are to be imposed see the subsection 2.3 above.

2.5   System Internal Data Requirements

Specify requirements on databases and data files to be included in the system. The Database architecture shall be described both in narrative and pictorial format. Requirements shall be specified for:

- Data integrity (which ensures that database data and structures reflect all changes made to them in the correct sequence),

- Data concurrency and resolution of deadlocks,

- Data consistency (which ensures that the data a user is viewing or changing is not changed (by other users) until the user is finished with the data),

- Data efficiency,

- Database administration including statistical reporting

- Transaction management requirements

- Data availability,

- Data storage and archival/retrieval

- Data backup and recovery requirements including scheduling, timeframes, equipment, facilities and procedures, and

- Data conversion.

2.6   System Security Requirements

Specify the system requirements concerned with maintaining security, privacy, and confidentiality. These requirements shall include the user identification and

authentication, access, security management and administration, and security auditing requirements. These security requirements shall include physical security, network security, database security, and software security. Include HIPAA privacy and security requirements.

2.7   Computer Hardware Requirements

Specify the requirements regarding computer hardware that must be used by the system. The requirements shall include number of each type of equipment, type, size, capacity, and other required characteristics of processors, memory, input/output devices, auxiliary storage, communications/network equipment, and other required equipment. Also, specify the requirements for the computer hardware resource utilization, such as maximum allowable use of processor capacity, memory capacity, input/output device capacity, auxiliary storage device capacity, and communications/network equipment capacity. The requirements (stated, for example, as percentages of the capacity of each computer hardware resource) shall include the conditions, if any, under which the resource utilization is to be measured.

2.8   Computer Software Requirements

Specify the requirements regarding computer software that must be used by, or incorporated into, the system. Examples include but are not limited to: operating systems, database management systems, communications/network software, network management system software, utility software, test software, office automation software, and virus protection software. The correct nomenclature, version, and documentation references of each such software item shall be provided.

2.9   Telecommunications Requirements

Specify the requirements concerning the network telecommunications that must be used by the system. Examples include geographic locations to be linked; configuration and network topology; transmission techniques; data transfer rates; gateways; required system use times; type and volume of data to be transmitted/received; time boundaries for transmission/ reception/response; peak volumes of data; and diagnostic features. Include some graphic depiction of the telecommunication requirements. Include information on both the Wide Area Network and Local Area Network.

2.10   System and Network Management Requirements

Specify the requirements concerning the systems and network administration management for the system. Include but not be limited to: general system and network management, fault management, monitoring detection and isolation of pending potential faults, performance management, operations control management, asset management (monitoring the configuration of assets), accounting management (resource utilization and billing statistics), and software distribution and management. Fault management shall include monitoring, detection, and fault isolation of failed devices (hard faults). Potential faults shall include software faults and automated problem tracking and resolution. Performance management shall include performance monitoring, capacity planning and trend analysis. Also, include any requirements for compatibility with existing system and network management software.

2.11   Project Management, Project Activities and Deliverable Requirements

Specify or refer to other documents containing the requirements concerning project management, project activities, and project deliverables that must be used by the project. At a minimum the areas included or referred to shall be:

- Project Management requirements,

- Quality Management requirements (This shall specify the requirements concerned with software quality factors identified in the contract. Examples include but are not limited to quantitative requirements regarding system functionality (the ability to perform all required functions), reliability (the ability to perform with correct, consistent results), maintainability (the ability to be easily corrected), availability (the ability to be accessed and operated when needed), flexibility (the ability to be easily adapted to changing requirements), portability (the ability to be easily modified for a new environment), reusability (the ability to be used in multiple systems), testability (the ability to be easily and thoroughly tested), usability (the ability to be easily learned and used), and other attributes.),

- Risk Management requirements,

- Configuration Management requirements,

- Testing requirements,

- Documentation requirements,

- Training requirements (This shall also specify requirements such as training devices, training materials, and number of personnel who need to be trained in each skill set.),

- Implementation requirements (This shall also specify the requirements concerned with impact on existing facilities and impact on existing equipment.)

- Disaster Recovery requirements (This shall specify disaster recovery and degraded operations that may result including: maximum down time, maximum time to recover from various levels of degraded or no operation, recovery procedure limitations including required interfaces with backup system(s), personnel and equipment requirements for recovery if such requirements are beyond normal staffing needs due to technical or staffing schedule requirements, and any other topics necessary to a complete specification of the disaster recovery planning and system.)

- Maintenance requirements (This shall specify the requirements concerned with system maintenance and software support), and

- Human Factors Engineering requirements (This shall also specify any requirements based on usability of the system.)

2.12   Design, Build, and Implementation Constraint Requirements

Specify the requirements that constrain the design, build, and/or implementation of the system. These requirements may be specified by reference to standards. Examples shall include:

Use of a particular architecture or requirements on the architecture, such as required databases or other software units; or use of acquirer-furnished property (equipment, information. or software),

Use of particular design, build, or implementation standards; use of particular data standards; use of a particular programming language, and

Flexibility and expandability that must be provided to support anticipated areas of growth or changes in technology, threat, or mission.

APPENDIX A

Include conceptual screen and report layouts for the system.

APPENDICES B-?

Appendices shall be labeled alphabetically Appendices may be used to contain referenced information or information which might otherwise have caused the document to be less readable if placed in the main body. Appendices may also be used for information that needs to be bound separately for security reasons.